Amendments to the Claims

Kindly cancel claims 34-35, and 48, without prejudice; amend claims 1, 4, 7, 11-20, 23-33 and 36-46, and add claims 49-51, as set forth below. In compliance with the Revised Amendment Format published in the Official Gazette on February 25, 2003, a complete listing of claims is provided herein. The changes in the amended claims are shown by strikethrough (for deleted matter) and underlining (for added matter).

1. (Currently Amended) A method of managing the locking of resources of a data repository, said method comprising:

determining whether a relationship between one resource and another resource of a data repository is a containment-based relationship or whether the relationship is a reference-based relationship, wherein the data repository comprises a hierarchical structure of a plurality of resources, said hierarchical structure comprising one or more resources having a reference-based relationship and one or more resources having a containment-based relationship;~~ and~~

~~locking at least one resource of said plurality of resources using a locking strategy that depends on whether the determined relationship is a containment-based relationship or a reference-based relationship~~ locking at least one resource of the one resource and the another resource using one type of locking strategy, in response to the determining indicating the relationship is a containment-based relationship; and

locking at least one resource of the one resource and the another resource using another type of locking strategy, in response to the determining indicating the relationship is a reference-based relationship.

2. (Original) The method of claim 1, wherein said locking of said at least one resource is performed without locking at least one other resource of said plurality of resources.

3. (Original) The method of claim 1, wherein said locking of said at least one resource is further based on an operation to be performed.

4. (Currently Amended) A system of managing the locking of resources of a data repository, said system comprising:

means for determining whether a relationship between one resource and another resource of a data repository is a containment-based relationship or whether the relationship is a reference-based relationship, wherein the data repository comprises a hierarchical structure of a plurality of resources, said hierarchical structure comprising one or more resources having a reference-based relationship and one or more resources having a containment-based relationship; ~~and~~

means for ~~locking at least one resource of said plurality of resources using a locking strategy that depends on whether the determined relationship is a containment-based relationship or a reference-based relationship~~ locking at least one resource of the one resource and the another resource using one type of locking strategy, in response to the determining indicating the relationship is a containment-based relationship; and

means for locking at least one resource of the one resource and the another resource using another type of locking strategy, in response to the determining indicating the relationship is a reference-based relationship.

5. (Original) The system of claim 4, wherein said means for locking comprises means for locking said at least one resource without locking at least one other resource of said plurality of resources.

6. (Original) The system of claim 4, wherein said means for locking further comprises means for locking said at least one resource based on an operation to be performed.

7. (Currently Amended) At least one program storage device readable by a machine, tangibly embodying at least one program of instructions executable by the machine to perform a method of managing the locking of resources of a data repository, said method comprising:

determining whether a relationship between one resource and another resource of a data repository is a containment-based relationship or whether the relationship is a reference-based relationship, wherein the data repository comprises a hierarchical structure of a plurality of resources, said hierarchical structure comprising one or more

resources having a reference-based relationship and one or more resources having a containment-based relationship; ~~and~~

~~locking at least one resource of said plurality of resources using a locking strategy that depends on whether the determined relationship is a containment-based relationship or a reference-based relationship~~ locking at least one resource of the one resource and the another resource using one type of locking strategy, in response to the determining indicating the relationship is a containment-based relationship; and

locking at least one resource of the one resource and the another resource using another type of locking strategy, in response to the determining indicating the relationship is a reference-based relationship.

8. (Original) The at least one program storage device of claim 7, wherein said locking of said at least one resource is performed without locking at least one other resource of said plurality of resources.

9. (Original) The at least one program storage device of claim 7, wherein said locking of said at least one resource is further based on an operation to be performed.

10. (Previously Presented) The method of claim 3, wherein the operation comprises at least one of create, delete, read and write.

11. (Currently Amended) The method of claim 10, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource in order to create an instance of the ~~second~~ another resource.

12. (Currently Amended) The method of claim 10, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource, the first~~ and the one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource and the ~~second~~ another resource in order to delete an instance of the ~~second~~ another resource.

13. (Currently Amended) The method of claim 10, wherein the relationship is a containment-based relationship~~, wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises read locking the ~~second~~ another resource in order to read therefrom.

14. (Currently Amended) The method of claim 10, wherein the relationship is a containment-based relationship~~, wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~second~~ another resource in order to write thereto.

15. (Currently Amended) The method of claim 10, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource in order to delete the ~~first~~ one resource.

16. (Currently Amended) The method of claim 10, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource in order to create an instance of the ~~second~~ another resource.

17. (Currently Amended) The method of claim 10, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises at least one instance of a first resource and a second resource,~~ and at least one of the ~~at least one instance of the first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the at least one of the ~~at least one instance of the first~~ one resource in order to delete the another resource.

18. (Currently Amended) The method of claim 10, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource,

and wherein the locking comprises read locking the ~~first~~ one resource and the ~~second~~ another resource in order to read the ~~second~~ another resource.

19. (Currently Amended) The method of claim 10, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises at least one instance of a first resource and a second resource,~~ and at least one of the ~~at least one instance of the first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises read locking at least one of the ~~at least one instance of the first~~ one resource and write locking the ~~second~~ another resource in order to write to the ~~second~~ another resource.

20. (Currently Amended) The method of claim 10, wherein the relationship is a referenced-based relationship, ~~wherein the at least one resource comprises a first resource, a second resource and a third resource,~~ and the ~~first~~ one resource and the ~~second~~ another resource ~~referencing the~~ reference a third resource, and wherein the locking comprises read locking one of the ~~first~~ one resource and the ~~second~~ another resource and write locking the third resource in order to write to the third resource.

21. (Previously Presented) The method of claim 1, wherein the determining comprises employing a set of policies.

22. (Previously Presented) The method of claim 1, wherein the at least one resource comprises at least one of a table and a directory.

23. (Currently Amended) The system of claim [[4]] 6, wherein the operation comprises at least one of create, delete, read and write.

24. (Currently Amended) The system of claim 23, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the means for locking comprises means for write locking the ~~first~~ one resource in order to create an instance of the ~~second~~ another resource.

25. (Currently Amended) The system of claim 23, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource,

and wherein the means for locking comprises means for write locking the ~~first~~ one resource and the ~~second~~ another resource in order to delete an instance of the ~~second~~ another resource.

26. (Currently Amended) The system of claim 23, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the means for locking comprises means for read locking the ~~second~~ another resource in order to read therefrom.

27. (Currently Amended) The system of claim 23, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource~~, and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the means for locking comprises means for write locking the ~~second~~ another resource in order to write thereto.

28. (Currently Amended) The system of claim 23, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the means for locking comprises means for write locking the ~~first~~ one resource in order to delete the ~~first~~ one resource.

29. (Currently Amended) The system of claim 23, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the means for locking comprises means for write locking the ~~first~~ one resource in order to create an instance of the ~~second~~ another resource.

30. (Currently Amended) The system of claim 23, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises at least one instance of a first resource and a second resource,~~ and at least one of the ~~at least one instance of the first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the means for locking comprises means for write locking the at least one of the ~~at least one instance of the first~~ one resource in order to delete the ~~second~~ another resource.

31. (Currently Amended) The system of claim 23, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ the ~~first~~ one resource ~~referencing~~ references the second resource, and wherein the means for locking comprises means for read locking the ~~first~~ one resource and the ~~second~~ another resource in order to read the ~~second~~ another resource.

32. (Currently Amended) The system of claim 23, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises at least one instance of a first resource and a second resource,~~ and at least one of the ~~at least one instance of the first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the means for locking comprises means for read locking at least one of the ~~at least one instance of the first~~ one resource and write locking the ~~second~~ another resource in order to write to the ~~second~~ another resource.

33. (Currently Amended) The system of claim 23, wherein the relationship is a referenced-based relationship, ~~wherein the at least one resource comprises a first resource, a second resource and a third resource,~~ and the ~~first~~ one resource and the ~~second~~ another resource ~~referencing~~ reference a ~~the~~ third resource, and wherein the means for locking comprises means for read locking one of the ~~first~~ one resource and the ~~second~~ another resource and write locking the third resource in order to write to the third resource.

34. (Cancelled)

35. (Cancelled)

36. (Currently Amended) The at least one program storage device of claim [[7]] 9, wherein the operation comprises at least one of create, delete, read and write.

37. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource in order to create an instance of the ~~second~~ another resource.

38. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource~~

~~comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource and the ~~second~~ another resource in order to delete an instance of the ~~second~~ another resource.

39. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises read locking the ~~second~~ another resource in order to read therefrom.

40. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a containment-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~second~~ another resource in order to write thereto.

41. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource in order to delete the ~~first~~ one resource.

42. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises write locking the ~~first~~ one resource in order to create an instance of the ~~second~~ another resource.

43. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises at least one instance of a first resource and a second resource,~~ and at least one of the ~~at least one instance of the first~~ one resource ~~referencing~~ references the ~~second~~ another resource,

and wherein the locking comprises write locking the at least one of the ~~at least one instance of the first~~ one resource in order to delete the ~~second~~ another resource.

44. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises a first resource and a second resource,~~ and the ~~first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises read locking the ~~first~~ one resource and the ~~second~~ another resource in order to read the ~~second~~ another resource.

45. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a reference-based relationship, ~~wherein the at least one resource comprises at least one instance of a first resource and a second resource,~~ and at least one of the ~~at least one instance of the first~~ one resource ~~referencing~~ references the ~~second~~ another resource, and wherein the locking comprises read locking at least one of the ~~at least one instance of the first~~ one resource and write locking the ~~second~~ another resource in order to write to the ~~second~~ another resource.

46. (Currently Amended) The at least one program storage device of claim 36, wherein the relationship is a referenced-based relationship, ~~wherein the at least one resource comprises a first resource, a second resource and a third resource,~~ and the ~~first~~ one resource and the ~~second~~ another resource ~~referencing~~ reference ~~the~~ a third resource, and wherein the locking comprises read locking one of the ~~first~~ one resource and the ~~second~~ another resource and write locking the third resource in order to write to the third resource.

47. (Previously Presented) The at least one program storage device of claim 7, wherein the determining comprises employing a set of policies.

48. (Cancelled)

49. (New) The method of claim 1, wherein the one type of locking strategy comprises a chained locking strategy, and the another type of locking strategy comprises a reference-based locking strategy.

50. (New) The method of claim 1, wherein a containment-based relationship is a relationship in which there is only one reference from the one resource to the another resource.

51. (New) The method of claim 1, wherein a reference-based relationship is a relationship in which there is one or more references from the one resource to the another resource.